ALBERTA SCIENCE 20 · UNIT D · 25 QUESTIONS

Changes in Living Systems — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **A population is best described as**

- A all the members of one species living in an area at the same time
- B all the living organisms in an area
- C all the species in an area together with the nonliving factors there
- D a group of organisms that eat the same food

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2 **The original source of energy for nearly all ecosystems on Earth is**

- A wind
- B the Sun
- C geothermal heat
- D ocean tides

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3 **An animal that feeds directly on producers is classified as a**

A decomposer

B secondary consumer

C primary consumer

D top predator

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4 **Decomposers are essential to ecosystems because they**

A produce oxygen during photosynthesis

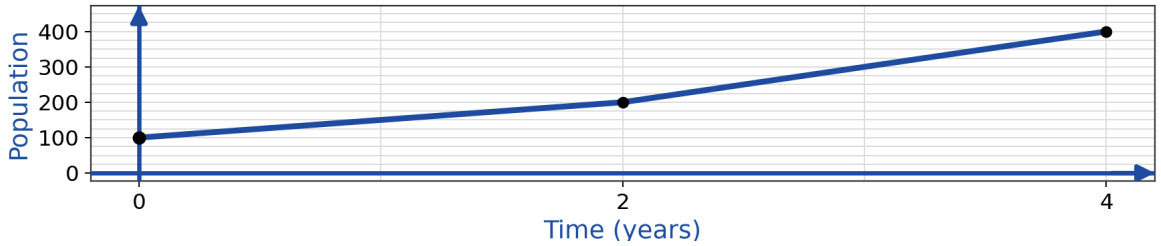
B control the populations of herbivores

C store energy in their tissues for long periods

D break down dead matter and return nutrients to the soil

Understand It with Pulse | Flag a mistake

5 **The graph shows the size of a deer population over time. The population shown after 4 years is**



- **A** 100
- **B** 200
- **C** 300
- **D** 400

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6 **Which process removes carbon dioxide from the atmosphere and stores the carbon in glucose?**

- **A** cellular respiration
- **B** combustion
- **C** photosynthesis
- **D** decomposition

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7 **Nitrogen fixation is the process by which**

- **A** nitrates are converted back into nitrogen gas
- **B** nitrogen gas is converted into ammonia compounds that plants can use
- **C** plants absorb nitrates through their roots
- **D** dead organisms are broken down into ammonia

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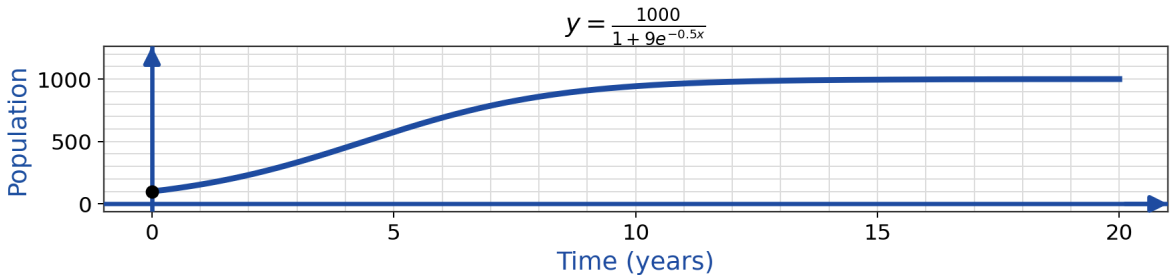
8 **The first organisms to colonize bare rock at the start of primary succession are usually**

- **A** grasses
- **B** shrubs
- **C** trees
- **D** lichens

Understand It with Pulse | Flag a mistake

9 **The graph shows a population growing toward its carrying capacity. The carrying capacity shown is about**



A 500

B 1000

C 1500

D 2000

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10 **The largest population size that an environment can support over a long period of time is called the**

- **A** carrying capacity
- **B** limiting factor
- **C** biotic potential
- **D** population density

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11 **Producers in a grassland ecosystem store 900 000 kJ of energy. The chain runs producers, primary consumers, secondary consumers, tertiary consumers. Using the 10% rule, the amount of energy, in kilojoules, available to the tertiary consumers is**

ANSWER _____

Understand It with Pulse | Flag a mistake

12 **During nitrification in the nitrogen cycle,**

A nitrogen gas is split apart by lightning

B nitrates are absorbed by plant roots

C bacteria convert ammonia into nitrites and then nitrates

D fungi convert proteins into nitrogen gas

Understand It with Pulse | Flag a mistake

13 **Fertilizer runoff enters a lake and causes a rapid growth of algae. When the algae die and decompose, fish in the lake begin to die mainly because**

A the oxygen level of the water decreases

B the water temperature increases

C the algae release a poison into the water

D the pH of the water increases

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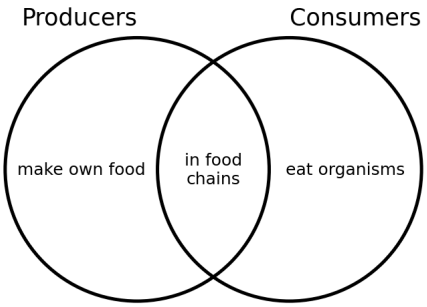
14 **The Venn diagram compares producers and consumers in a food chain. The description shown only for producers is**



A they make their own food

B they eat other organisms

C they break down dead matter

D they are found in food chains

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15 **Biomagnification is best described as**

A the growth in size of top predators over time

B the increase in the number of species in an ecosystem

C the breakdown of toxins as they move up a food chain

D the increasing concentration of a toxin at higher trophic levels

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16 **Secondary succession differs from primary succession because secondary succession**

A occurs only in aquatic ecosystems

B begins in an area where soil is already present

C does not lead to a climax community

D takes place much more slowly than primary succession

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17 **A pesticide is present in the producers of a lake at a concentration of 0.02 ppm. The concentration increases tenfold at each trophic level. The concentration, in ppm, in the top predators at the fourth trophic level is**

ANSWER _____

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18 **Over the past two centuries, the growth of the human population has been best described as**

A exponential

B logistic

C linear

D declining

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19 **A keystone species is a species that**

- **A** is the most abundant species in its ecosystem
- **B** has no natural predators
- **C** has an effect on its ecosystem that is much larger than its numbers suggest
- **D** is found at the top of every food chain

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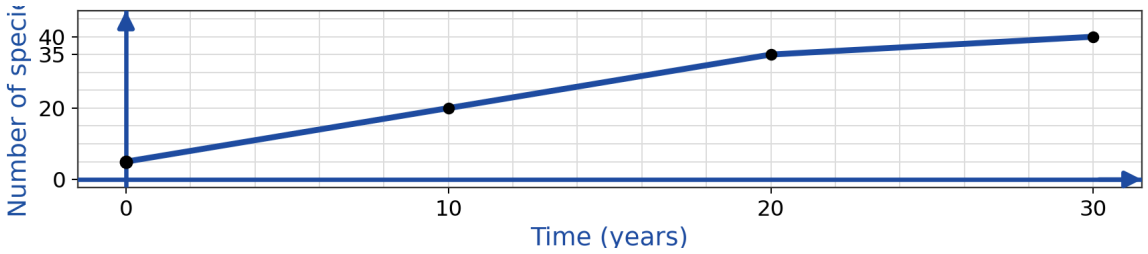
20 **The graph shows the number of species in an area during succession over time. The number of species shown after 20 years is**



- **A** 5
- **B** 20
- **C** 35
- **D** 40

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21 **Habitat fragmentation most directly harms wildlife populations by**

A increasing the total area of habitat available

B reducing competition between species

C increasing gene flow between populations

D isolating populations and reducing genetic diversity

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22 **Carbon can be stored for millions of years in the form of**

A carbon dioxide in the air

B fossil fuels such as coal and oil

C glucose in plant tissues

D dissolved carbon dioxide in surface ocean water

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23 **Zebra mussels were introduced into the Great Lakes from Europe. They have spread rapidly and reduced native mussel populations, mainly because in their new environment they**

- **A** grow more slowly than native species
- **B** cannot reproduce successfully
- **C** have few natural predators and reproduce quickly
- **D** are eaten by most native fish

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24 **The population of a town increased from 12 500 to 14 375 over one decade. The percent increase in the population, to the nearest whole percent, is**

ANSWER _____

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25 **Which action best helps maintain a sustainable ecosystem?**

A draining wetlands to create farmland

B introducing a new species to control a pest

C clearing forests to plant only one kind of crop

D protecting a wide variety of species and their habitats

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ANSWER KEY

1. A
2. B
3. C
4. D
5. D
6. C
7. B
8. D
9. B
10. A
11. 900
12. C
13. A
14. A
15. D
16. B
17. 20
18. A
19. C
20. C
21. D
22. B
23. C
24. 15
25. D

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